

WHAT IS CLAIMED IS:

1. A method of producing a mounting structure comprising:
a connecting step of flip-chip mounting a semiconductor device onto a substrate;

a bonding step of bonding a region of said semiconductor device to a region of said substrate by means of an adhesive, each of said regions not being involved in electrical connection;

a testing step of performing a test of electrical properties on said semiconductor device and said substrate that are connected to each other; and

a separating/sealing step of separating said semiconductor device from said substrate after heating a bonding place of said adhesive up to a temperature higher than a glass transition point or a melting point of said adhesive if it is determined that said electrical properties are poor in said testing step, and sealing said semiconductor device and said substrate by means of a sealing resin if it is determined that said electrical properties are good in said testing step.

2. A method of producing a mounting structure according to claim 1, wherein an electrically conductive adhesive used in said connecting step comprises a thermoplastic resin.

3. A method of producing a mounting structure according to claim 1, wherein said adhesive used in said bonding step

comprises a thermosetting resin.

4. A method of producing a mounting structure according to claim 3, wherein said adhesive is cured at a temperature lower than said glass transition point of said adhesive in said bonding step.

5. A method of producing a mounting structure according to claim 1, wherein said adhesive used in said bonding step comprises a low melting point metal.

6. A method of producing a mounting structure according to claim 1, wherein said semiconductor device is separated from said substrate by applying a torsional force to said adhesive in said separating/sealing step if it is determined that said electrical properties are poor in said testing step.

7. A method of producing a mounting structure comprising:
a connecting step of flip-chip mounting a semiconductor device onto a substrate;

a bonding step of bonding a region of said semiconductor device to a region of said substrate by means of an adhesive, each of said regions not being involved in electrical connection;

a peeling permitting layer forming step of forming a peeling permitting layer on an adhesive abutting region of said semiconductor device and/or an adhesive abutting region of said substrate, said peeling permitting layer forming step being performed before said bonding step;

a testing step of performing a test of electrical properties on said semiconductor device and said substrate that are connected to each other; and

a separating/sealing step of separating said semiconductor device from said substrate if it is determined that said electrical properties are poor in said testing step, and sealing a gap between said semiconductor device and said substrate by means of a sealing resin if it is determined that said electrical properties are good in said testing step.

8. A method of producing a mounting structure according to claim 7, wherein said semiconductor device is separated from said substrate by applying a torsional force to said adhesive in said separating/sealing step if it is determined that said electrical properties are poor in said testing step.

9. A method of producing a mounting structure according to claim 7, wherein a fluororesin layer that weakens a bonding force of said adhesive is formed as said peeling permitting layer in said peeling permitting layer forming step.

10. A method of producing a mounting structure according to claim 9, wherein said adhesive is separated from said peeling permitting layer after softening said adhesive to weaken said bonding force of said adhesive by heating up to a temperature higher than a glass transition point or a melting point of said adhesive in said separating/sealing step if it is determined that said electrical properties are poor in said testing step.

11. A method of producing a mounting structure according to claim 7, wherein a layer having a bonding force that weakens by a predetermined process is formed as said peeling permitting layer in said peeling permitting layer forming step.

12. A method of producing a mounting structure according to claim 11, wherein a substance having a bonding force that weakens by swelling through reaction with a solvent is formed as said peeling permitting layer in said peeling permitting layer forming step, and

said semiconductor device is separated from said substrate after swelling said peeling permitting layer to weaken said bonding force by adding a solvent to a bonding interface between said peeling permitting layer and said adhesive in said separating/sealing step if it is determined that said electrical properties are poor in said testing step.

13. A method of producing a mounting structure according to claim 11, wherein a substance having a bonding force that weakens by foaming through a heating process is formed as said peeling permitting layer in said peeling permitting layer forming step, and

said semiconductor device is separated from said substrate after foaming said peeling permitting layer to weaken said bonding force by heating a bonding interface between said peeling permitting layer and said adhesive in said separating/sealing step if it is determined that said

electrical properties are poor in said testing step.

14. A method of producing a mounting structure according to claim 11, wherein a resin having a glass transition point or a melting point that is lower than said adhesive is formed as said peeling permitting layer in said peeling permitting layer forming step, and

said semiconductor device is separated from said substrate after selectively softening said peeling permitting layer to weaken said bonding force by heating a bonding interface between said peeling permitting layer and said adhesive up to a temperature which is higher than a glass transition point or a melting point of said peeling permitting layer and lower than a glass transition point or a melting point of said adhesive if it is determined that said electrical properties are poor in said testing step.

15. A mounting structure comprising:

a semiconductor device which is flip-chip mounted on a mounting surface of a substrate;

an adhesive for bonding a region of said semiconductor device to a region of said substrate, each of said regions not being involved in electrical connection; and

a peeling permitting layer which is disposed between said adhesive and said semiconductor device and/or between said adhesive and said substrate for permitting peeling between said adhesive and said semiconductor device and/or between said

adhesive and said substrate.

16. A mounting structure according to claim 15, wherein said peeling permitting layer is formed of a fluororesin that weakens a bonding force of said adhesive.

17. A mounting structure according to claim 15, wherein said peeling permitting layer is formed of a substance having a bonding force that weakens by a predetermined process.

18. A mounting structure according to claim 17, wherein said peeling permitting layer is formed of a substance having a bonding force that weakens by swelling through reaction with a solvent.

19. A mounting structure according to claim 17, wherein said peeling permitting layer is formed of a substance having a bonding force that weakens by foaming through a heating process.

20. A mounting structure according to claim 17, wherein said peeling permitting layer is formed of a substance having a glass transition point or a melting point which is lower than said adhesive.